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GEOGRAPHICAL REVIEWS

CLIMATE AND EVOLUTION

ELLSWORTH HUNTINGTON. *World-Power and Evolution*. 287 pp.; maps, diagrs., bibliogr., index. Yale University Press, New Haven, 1919. \$2.50. 9 x 6 inches.

Dr. Huntington has given us another stimulating discussion of climatic influences. Whereas formerly he has concerned himself chiefly with space relationships, he now undertakes to outline the importance of climate to evolution. In his own words, "the problem of the effect of the physical environment upon human progress . . . is considered in its relation to time" (Preface, p. 1).

In order to handle his problem, the author has taken a long view of evolution, which he has measured with the pendulum of climatic changes, borrowed for the purpose from his earlier dissertations on the subject. The matter brought over from former studies is amplified by additional data. These data are derived from numerous and diverse fields of knowledge, and the conclusions which are drawn from them are woven together with the brisk skill which we have learned to expect from Dr. Huntington.

On the basis of a statistical study of variations in the death rate, success of applicants taking Civil Service examinations, consumption of alcoholic liquors, school attendance, bank clearings, general prices, national bank deposits, immigration, and yield of crops is evolved the hypothesis that waves of prosperity and of adversity are directly impelled by variations in the health of a community. A detailed investigation of the death rate of nineteen separate places in relation to the temperature, humidity, and variations of temperature and humidity of those places is adduced to show that health varies with fluctuations in the weather—directly, markedly, and in accordance with certain recognizable principles. To fortify these conclusions a chapter is devoted to a discussion of the results of several experiments with schoolrooms of different temperature, humidity, and variation.

After carefully and at length laying the foundations for his thesis, the author begins upon the superstructure, which is the product of an equally extensive search for materials. A number of biological experiments are quoted to illustrate the principle and the conditions of mutation among lower types of animals; and certain anthropological and sociological data are recapitulated to bring out the fact that mutations have occurred and are occurring among men. The results of all these experiments are referred to the common denominator—climatic change.

Finally, Rome, Turkey, and Germany are selected as examples of units which illustrate the workings of the hypothesis. The data for Rome are furnished by history and measured by the results of the author's study of the growth of big trees in California; Turkey is treated chiefly in the light of personal experience and a study of climatic changes in past centuries in Western and Central Asia; Germany is viewed as a present and future world problem.

From the foregoing recapitulation a suggestion of the scope of the work may be derived. Covering in the space of 250 printed pages the tremendous dynamic swing of the eons and the vast intricacies of several fields of human knowledge, it must in the nature of things be open to attack as superficial. Doubtless the author would be the first to admit the weakness of his position. At any rate he candidly acknowledges the limitations of accessible material on which conclusions are based, and he is at great pains to describe in detail the exact statistical methods used in arriving at those conclusions. As a matter of fact, this very care results in overloading parts of the text with methods (e.g. pp. 91-94), and, although there is obviously a sincere attempt to elucidate the use made of statistical material, it curiously enough has the unfortunate effect of causing the reader to wonder if the facts are as relevant and as valuable as they seem. Amplification of appendices to include all such technical information would have obviated these criticisms.

It seems clear that Chapters 1 to 6 contain the important contribution of the book. In these hundred pages the results of huge masses of statistics are marshaled for a definite purpose, and a logical conclusion is deduced from them, viz.: (a) that climatic pulsations have marked effects upon health, which in turn has much to do with such matters as waves of inebriety, financial crises, and economic and social progress in general; (b) that variability of weather and climate may be a factor of the utmost importance in stimulating a population to the highest achievements, whereas lack of variability may tend to keep a social group at a low level of development.

In the three chapters which close the book, Dr. Huntington, as mentioned above, selects three states as illustrations of "the effect of physical environment upon human progress" (p. 1). The worth of the chapter on Germany is impaired by the fact that it was written while the United States was still actively campaigning against that nation, and therefore shows unfortunate traces of a very natural and pardonable animus. The discussion of Turkey wells up from the author's deep personal experiences and is therefore picturesque and heartfelt; it does not, however, advance the solution of his problem much beyond the point reached in his earlier works on the Near East. The chapter on Rome is open to at least three sweeping adverse criticisms. First, patient and detailed research into the writings of the ancients has failed to reveal any marked "downward sweep" of climate in the Mediterranean region within the period of written record, whereas there is wholly adequate proof that some parts of the basin were in general at least as lacking in moisture in ancient times as now (cf. E. C. Semple: *The Ancient Piedmont Route of Northern Mesopotamia*, *Geogr. Rev.*, Vol. 8, 1919, pp. 153-179). Furthermore, it is certainly quite unnecessary to struggle to uphold a topheavy climatic hypothesis in order to explain much of Roman history in terms of geography. It is, for instance, clear enough from the experience of farmers on our own Great Plains that a few years of unusually dry weather has been enough to drive them to better-favored lands, and of farmers over the world that the removal of watershed forests in any region which approaches the lower limit of adequate rainfall is likely to result at times in an insufficient water supply in the dependent lowlands. Both these conditions were marked in certain periods of Roman history. It is likewise obvious to every student of historical or political geography that geographic conditions which may be, on the whole, favorable to a population in an early stage of development may come to cramp that population and prevent or retard progress at a subsequent period. Rome stands as a conspicuous example of this principle. Time and again her statesmen were forced to cast about for new means of solving problems arising out of her dynamic activity in a restricted area, and it is little wonder that unrest and decadence are recurring phenomena in Roman history. In the third place, it seems to be generally agreed by students of social science that human motives and human progress or retrogression cannot possibly be explained on any single ground, not even so broad a field as geography as a whole, much less on one or two phases of climate. Dr. Huntington himself warns the reader on this point in his opening pages—but he seems occasionally to forget the warning.

The third (middle) major division of the book undertakes a discussion of prehistoric evolution in terms of climatic changes. That there have been climatic changes in the geological past is certain. There is likewise evidence to show that changes of environmental conditions affect the metabolism of animals. But to attempt to relate the two in our present state of information results in awakening admiration for the audacity of the author and vigorous suspicion of the validity of his findings. It would seem that geologists, biologists, and anthropologists have much spade work to do before geographers can make effective use of their materials in this suggestive and enticing field of research.

In style, in clarity of presentation, and in typographic attractiveness the book approaches the ideal. No worker in the field of human geography can fail to be stimulated by a perusal of it.

D. S. WHITTLESEY

THE PAN-TURANIAN PROBLEM

M. A. CZAPLICKA. **The Turks of Central Asia in History and at the Present Day: An Ethnological Inquiry into the Pan-Turanian Problem, and Bibliographical Material Relating to the Early Turks and the Present Turks of Central Asia.** 242 pp.; map, bibliogr., index. The Clarendon Press, Oxford, 1918. 9 x 6 inches.

The subtitle of this book is indicative of its purpose. The question of the political future of Central Asia, a pivotal area in the world's history, becomes of increasing import as to its ancient strategic significance is added increasing significance of its natural riches (see Appendix A for a summary of the resources of Central Asia). Any movement attempting to bring such an area under a single political power perforce seeks justification. Pan-Turanian propaganda has claimed racial unity and the desire for national unity as a basis. On the merits of this claim Miss Czaplicka throws light by an analysis of archeological, historical, and ethnological data of the peoples speaking Turkic languages. Her conclusion is thus expressed: "To speak of the Osmanlis and the Turanian Turks as a racial and cultural unity would be by a stroke of the pen, or by means of a propagandist pamphlet, to wipe away all the invasions, migrations, massacres, and fusions which for twenty centuries have played havoc with that part of the world."